



Environmental Purchasing Program
King County Procurement Services Division
www.metrokc.gov/procure/green

1998 Annual Report

September, 1998

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I. King County Environmental Purchasing Program

The King County Recycled Product Procurement Policy (KCC 10.16, Executive Policy CON 7-1-2 (AEP)) was adopted by the King County Council in 1989. The policy directs County agencies to purchase products manufactured with recycled and environmentally preferable products "whenever practicable." This annual report summarizes the achievements of King County agencies, with the assistance of the Environmental Purchasing Program, from July 1, 1997 through June 30, 1998.

The Policy (www.metrokc.gov/procure/green/policy.htm)

The policy reflects a long-term commitment on the part of King County to support markets for environmentally preferable materials through County purchasing. In 1998, King County was awarded the first annual **Environmental Purchasing award** of the **National Association of Counties (NACo)**, which recognized the County as a national leader in municipal procurement of recycled and environmentally preferable materials. We are maintaining this position of leadership through the efforts and accomplishments of County employees who are actively pursuing ways to use recycled and other environmentally preferable materials in new applications and working with vendors to promote the development of viable and economical environmental products. This report represents the progress that agencies have made toward the goals of the policy.

The policy was revised and simplified in 1995, following enhancements in the guidelines of the United States Environmental Protection Agency (EPA), the creation of Federal Executive Order 12873 (which requires environmental purchasing by Federally-funded agencies), and the experience of five years of implementation by King County agencies. These revisions recognized the broader category of "environmentally preferable" products, streamlined the policy, and clarified accountabilities of agencies. The policy also requires the program to monitor further revisions to EPA and Federal guidelines and to communicate these to user agencies.

The Program

The objective of the Environmental Purchasing Program is to bring about fundamental change in the procurement priorities of the more than 12,000 employees of King County and its contractors. With the full participation of the people in the agencies who make purchasing decisions, the County can attain its goal of buying recycled and other environmentally preferable products "wherever practicable." The program supports the efforts of County personnel by providing information and technical assistance to help them identify economical and effective recycled and environmentally preferable products and by creating and maintaining contracts for their purchase. The program helps agencies understand policy requirements and communicates specifications, contracts, and other practical information between County agencies, vendors, users, and other jurisdictions.

The program's collaborative approach, which provides information and guidance to County employees and relies on their expertise to evaluate procurement opportunities and revise procedures, is gradually changing the way agencies view these opportunities. County agencies have responded by placing more emphasis on developing ways to increase the use of recycled and other environmentally preferable products, especially where these will reduce costs, while still meeting rigorous performance standards.

Implementation

The King County Environmental Purchasing Program calls upon County agencies to revise contracting procedures and specifications to increase the purchase of environmentally preferable products.

King County agencies, with the assistance of the Environmental Purchasing Program:

- evaluate recycled and environmentally preferable products and processes to determine the extent to which they can be effectively used by the agency and its contractors;
- use recycled and other environmentally preferable products and processes whenever practicable;
- ensure that contracts issued by the agency require recycled and environmentally preferable components whenever practicable and that contractors provide certification of this content and report amounts purchased; and
- report the progress of policy implementation, including evaluation results and amounts purchased by the agency and its contractors.

The **Procurement Services Division** administers the Environmental Purchasing Program to facilitate the implementation of this policy by agencies. The program:

- reviews procurement opportunities and policy requirements with agencies and monitors the status of policy implementation efforts;
- researches information about recycled and environmentally preferable products, applications, and vendors and communicates it to agencies;
- coordinates product evaluations by agencies, disseminates evaluation results, and assists agencies in the development of specifications and contracts;
- creates educational opportunities to provide product-information to agency users;
- maintains a world-wide-web site and produces an e-mail bulletin to provide users with information about the performance, cost, and availability of environmentally preferable and recycled materials, and about policy implementation strategies;
- provides technical support to the outreach programs of the Solid Waste Division, the Department of Natural Resources, and others, to facilitate the implementation of policies favoring recycled and environmentally preferable procurement by suburban cities in King County;
- transmits the annual report of the King County Environmental Purchasing Program to suburban cities, other jurisdictions, and others, to promote the exchange of information between personnel in County agencies and their counterparts in other jurisdictions; and
- coordinates development and implementation of policy models and procurement guidelines and recommends policy revisions.

The Challenges

A number of factors challenge efforts to increase environmental purchasing:

- The scope of the task of policy implementation nearly doubled in 1996, as the County absorbed the responsibilities of the regional transit and wastewater utility, formerly known as METRO. This consolidation created new County agencies and reorganized others, which has required new communication channels to be established and existing ones to be renewed;
- project managers, designers, and contractors are not familiar with the use of many recycled and other environmentally preferable products and are uncertain of the ways in which they might be effectively specified and applied as substitutes for familiar products;
- performance standards and history are often unavailable for new product applications and environmentally preferable practices;
- developers of environmentally preferable products are often in the early stages of identifying the needs of potential customers and establishing the production, marketing, and distribution capacity to meet them;
- many products must meet rigorous standards maintained by various governmental and industry regulators, and the modification of these standards can be a painstaking and expensive process;
- after a product is created, standards and specifications are developed, and regulations are met, the use of the product must be economically responsible. The cost must be competitive, and contractors must have developed the processes and skills needed for its economical use; and
- developing and administering data-collection procedures to assemble information from contracts is time-consuming and places unfamiliar demands on participants.

The Opportunities

The Program and County agencies are addressing these challenges by:

- maintaining liaisons between all re-organized agencies and the Environmental Purchasing Program to facilitate policy implementation and data collection;
- seeking new applications for recycled and other environmental products and encouraging contractors to use them whenever possible;
- evaluating environmental product performance in new applications through testing and pilot programs and sharing the results through the Internet's World-Wide-Web, the email "Environmental Purchasing Bulletin," and by other means with agencies, jurisdictions, and other users;
- assembling detailed application information and performance data from product users and manufacturers and disseminating this to potential users in the County;
- helping agencies develop specifications for environmental products whenever evaluations establishes that product performance and costs are acceptable; and
- helping potential suppliers obtain feedback from users to assist them in product development and helping them understand King County procurement processes.

II. Purchases

Paper Purchase Summary

Most printing and office supply paper is purchased through centrally administered term-supply contracts, which enable agencies to purchase hundreds of paper products at low and consistent prices. Recycled paper is specified wherever practicable and purchased whenever available within the 15% price-preference guidelines of the policy.

Recycled paper purchases have grown from 8% at the start of policy implementation in 1989 to **94% in 1998**, exceeding the 60% goal established by policy. King County agencies purchased recycled paper goods valued at **1.6 million dollars** in 1998.

The table below shows the dollar value and percentage of total recycled paper purchases for 1998 by category.

| 1997-98 Recycled Paper Purchases | | \$ | % |
|----------------------------------|--|--------------------|------------|
| Photocopy and Bond Paper | | 427,109 | 99 |
| Printing Paper* | | 736,689 | 94 |
| Paper Products, Miscellaneous | | 431,901 | 87 |
| Totals: | | \$1,595,699 | 94% |

*estimated cost of paper only, does not include printing costs

Paper Purchase Detail

King County purchases of paper fell into three general categories:

- **Photocopy and Bond Paper** supplied to County agencies met or exceeded King County minimum recycled content standards for purchases totaling **over \$425,000** in 1998, which is **99%** of total copy paper purchases. Further, the predominant paper types contain 20%, and 30% post-consumer paper material, exceeding the 10% standard of the United States Environmental Protection Agency and the 20% standard established by President Clinton's 1993 Executive Order to all Federally-funded agencies. In fact, the 30% post-consumer content paper meets 1999 recycled guidelines established by Federal Executive Order 12873.
- **Printing** by the County Printshop and through contracts administered by the Procurement Services Division use recycled paper whenever it is available at prices within policy guidelines. During 1998, recycled paper purchases reached **94%**, totaling **over \$735,000**, including the cost of paper for **9 million** printed bus-schedules.
- **Other Paper Products** purchased include office supplies, such as envelopes, boxes and notepads, and janitorial products, such as paper towels and tissues. **87%** of these met recycled-content standards in 1998, totaling **over \$430,000**.

Non-Paper Purchase Summary

The purchase of non-paper recycled-content products is less straightforward than that of paper products. These products are often not well established in the marketplace and are often purchased through complex engineering and construction contracts. Purchases depend on the specifications of designers, based on project-specific materials requirements; acceptance by State, Federal, and other external standards organizations; product performance, price and availability; and the ability of contractors to deliver the expertise required for their use.

The table below represents non-paper recycled product purchases through term supply contracts, construction contracts and direct purchases. Term contract purchases are captured through reporting required of vendors by the Environmental Purchasing Program and the program's liaison network captures data when agencies purchase products by other means. Such purchases occur in construction or other service contracts not tied to term supply contracts or are executed by "direct voucher" for evaluation purposes or for purchases too small for a formal term contract.

County agencies continued to institutionalize use of environmental products in 1998, with purchases totaling **nearly \$750,000**.

| Commodity Purchases | Per | Units | \$ |
|----------------------------------|------------|------------|------------------|
| Aggregate, Recycled Concrete | Ton | 21,222 | \$166,384 |
| Antifreeze, Remanufactured | Gallon | 1,983 | \$9,469 |
| Asphalt, Rubberized | Ton | 1,804 | \$67,650 |
| Can Liners, Recycled | Case | 5,148 | \$88,244 |
| Compost | Yard | 3,918 | \$78,773 |
| Oil, Re-refined | Gallon | 9,716 | \$25,850 |
| Plastic Lumber | Each | 143 | \$11,000 |
| Shredded Wood | Yard | 66,180 | \$85,372 |
| Shredded Wood Mulch | Yard | 618 | \$6,049 |
| Tire Retreading | N/A | N/A | \$77,240 |
| Toner Cartridges, Remanufactured | Each | 4008 | \$123,259 |
| Total Dollars: | N/A | N/A | \$739,290 |

Non-Paper Purchase Detail

Purchases of non-paper recycled materials require evaluation and application-development by engineers, architects, and other professionals. This section provides details of some of the ways in which County agencies are addressing the challenges presented by these materials.

- **Aggregate Made with Recycled Concrete** has been used for temporary road surface at the **Cedar Hills Landfill** of the **Solid Waste Division** since 1991. This agency **saved over \$20,000** during 1998 by using this material in place of increasingly scarce and expensive native rock aggregate. Expenditures by the Division for recycled concrete aggregate in 1998 totaled over \$165,000. For more information, visit the program web-site at www.metrokc.gov/procure/green/swconag.htm.

The specifications used by project managers typically permit contractors to use recycled materials within specified limits, without even telling us about it. Since many of the County's contractors obtain materials from suppliers who routinely incorporate recycled concrete to "extend" standard aggregate, it is likely that substantial amounts of recycled material are being used in this way, but the cost of collecting quantitative data is prohibitive.

- **Aggregate – Rubblizing**. In 1998, The King County **Roads Division** tested a process in which deteriorated concrete roadways are rehabilitated by crushing this concrete surface into rubble and using this as a base for a new asphalt road surface. This process is about one-fourth the cost of other techniques, because it avoids the expense of landfill disposal and of new aggregate for the roadbed. The Roads Division used this method for a 2,500 linear feet of roadway this year, avoiding disposal of approximately 1,100 cubic yards of concrete, **saving roughly \$90,000** on avoided disposal cost and the purchase of virgin aggregate. The ultimate cost of the project was about \$30,000.
- **Aggregate Composed of 100% Recycled Glass** has been used in projects of the **Solid Waste Division** and **Roads Division** for pipe-bedding and trench backfill in place of virgin rock aggregate. These applications have resulted in cost-savings, but are still considered trial uses, since the availability and quality of recycled glass aggregate is highly variable. The **Roads Division** is using approximately **300 cubic yards** of recycled glass as a retaining wall backfill this summer (1998), in an application similar to that of their 1995 project. For more information about these projects, visit the program web-site at www.metrokc.gov/procure/green/rdsag.htm
- **Antifreeze manufactured with re-refined ethylene glycol** has been available under a contract maintained by **Procurement Services Division** since 1991. **Motor Pool, Airport, Solid Waste Operations, and the Renton Maintenance Facility** used **2,000 gallons** of re-refined antifreeze in 1998 and **returned over 1,000 gallons** of spent antifreeze to the supplier for "closed-loop" re-refining into new antifreeze. This contract also requires that the material be re-refined in a manner that meets all regulatory requirements, thereby avoiding the discharge of a toxic material into local waterways and ensuring compliance with State and Federal regulations. In 1998, the **Transit Division** began testing a concentrated re-refined antifreeze in the Non-Revenue vehicle shop, but the Division has not yet approved the use of re-refined antifreeze in buses. For more information, visit the program web-site at www.metrokc.gov/procure/green/antifrz.htm

- **Asphalt** can be economically and effectively recycled and used for many applications. Documentation of King County's past use of recycled asphalt is available on the program web-site at www.metrokc.gov/procure/green/rdsasph.htm (Road project) and www.metrokc.gov/procure/green/rjcasph.htm (Regional Justice Center project).
- **Asphalt made with recycled rubber** was used in an overlay project by **Roads Division** in 1998. It had been suggested that using "rubberized asphalt" might reduce traffic noise in this 6.3 mile overlay project. The project included noise measurement on the existing deteriorated concrete pavement, the new pavement with a typical asphalt surface, this surface laid on a "rubblized" base, and 3,600 linear feet (1,804 tons) of "rubberized asphalt." No significant differences in noise-levels were found between the asphalt surfaces, though all were quieter than the deteriorated concrete surface, with noise reduced from between 2.6 to 4.8 decibels. The cost of the rubberized section was approximately 35% higher than conventional asphalt.
- **Compost-amended topsoil** is specified by the **Roads Maintenance Section** and by **Roads Engineering Section** in construction projects. The maintenance section purchased over 1,000 yards at a cost of **\$10,000** during 1998 and the Roads Engineering Section reported that their contractors used almost **3,000 cubic yards**, at an installed cost of over **\$70,000**. Fifty-two percent (52%) of the material used was biosolids compost and forty-eight percent (48%) was yard-waste compost. Further information about the use of compost by County agencies is available at the program web-site at www.metrokc.gov/procure/green/compost.htm
- **Motor Oil** manufactured with re-refined base-stock has been used in County vehicles operated by the **Renton Maintenance Facility, and Solid Waste Operations** since 1992. These agencies purchased **over 9,700 gallons** of re-refined oil at a cost of nearly **\$26,000** in 1998. The **Motor Pool, Stadium Administration and Airport Division** used this product for three years, but discontinued its use when the contractor was unable to meet a revised specification, which called for 5W-30 viscosity oil instead of 10W-30. The contractor has indicated that it plans to be able to furnish this material for future contracts.

Emergency vehicles operated by the **Medic-One** unit of the **Department of Public Health** receive warranty-maintenance service from a Ford dealership. At the request of Medic-One, the dealership recently agreed to use re-refined oil for this service and accepted delivery of a pallet-load (96 cases) of re-refined oil for that purpose.

From 1992 to 1994, contracts required used motor-oil to be re-refined for use as new motor-oil. Bidders for the current oil-supply contract were unable to offer this service in our area, however, and used oil is sold as "bunker-oil," to be burned as fuel in large marine engines, power generating stations, industrial boilers and furnaces. We believe that the experience local vendors gained through past contracts with King County will help them as they work toward re-establishing "closed-loop" systems for oil supply.

- **Paint** products with recycled content continue to be evaluated by County agencies as they become available, but few have been judged sufficient in quality, cost, and/or availability for County applications. For information about King County's experience with recycled paint, please see the program web-site at www.metrokc.gov/procure/green/paint.htm

- **Plastic Products:**

Can-Liners

In 1998, King County purchased over **5,000 cases** of can-liners at a cost of **\$88,000**. These were made with 30% high-density polyethylene (HDPE) and 25% low-density polyethylene (LDPE) recycled post-consumer plastic. Included in this number is the purchase of 30,000 litterbags containing 10% post-consumer plastic, purchased by the **Renton Maintenance Facility** of the **Fleet Administration Division**. For the fifth consecutive year, the **E-911 program** of the **Emergency Management Division** of the **Department of Information and Administrative Services** purchased **200 cases** of litterbags, at a cost of **\$14,000**. These were manufactured with 25% recycled content and bear the chasing-arrows logo. For more information, visit the program web-site at www.metrokc.gov/procure/green/plasbags.htm

Plastic Lumber – Equipment Shop

The **Renton Maintenance Facility** of the **Fleet Administration Division** requires new dump trucks to be outfitted with recycled plastic sideboards before delivery. High-quality old growth fir had been customarily used in this application, but it is increasingly scarce and expensive. Since 1996, the Division has been retrofitting all of its trucks with recycled plastic because it is more impact-resistant and needs to be replaced less frequently, saving money in the long-term despite its higher initial cost. The truck-equipment vendor originally delivered these sideboards only because King County specified them, but now offers them as a standard option for all of its customers because of its superior performance and lower long-term cost. In the past year, the Renton Facility has purchased **24 plastic sideboards**, at a total cost of **\$3,600**. Because replacement frequency has been reduced from two wooden sideboards per week to fewer than one plastic sideboard per month, the Division is **saving \$5,000 per year** in materials costs alone. For more information, visit the program web-site at www.metrokc.gov/procure/green/errlbr.htm

Plastic Lumber – Parks Applications

Parks Division has purchased **plastic lumber** for bench-slat replacement, playground equipment, bollards, and more. For many of these applications, plastic lumber is preferred for its resistance to decay, graffiti and chemical damage. This material results in significant cost-savings when used as a substitute for chemically treated lumber in applications involving contact with soil and water and in other high-maintenance environments.

In 1997, two new **playground structures** installed at **Fort Dent** by the **Parks Division** contained 85% recycled material, including recycled plastic, steel and aluminum. Similar installations are occurring around the County as playground structures are replaced. Most of the new playground structures being selected contain high levels of recycled materials.

In 1997, **Parks Division** purchased 5 plastic picnic tables for a total of \$2,000, using a contract maintained by the State of Washington. The tables were placed at **Five-Mile Park**.

Parks Division used plastic lumber for engraved posts at 17 campground sites and 8 water stations at the **Tolt River Campground**. Parks personnel are testing the plastic to determine how well this material will hold up to weather and water-contact. Wood posts in this environment have a 4-5 year replacement schedule. For more information about Park's use of recycled-plastic lumber, visit the program web-site www.metrokc.gov/procure/green/pkslbr.htm

Plastic Lumber – Roads Applications

The **Bridge Unit** of **Roads Division** is using recycled plastic “seam-plates” for seismic upgrades to County bridges. In the past year, they have used these on three bridges with plans to use them in future projects.

Plastic Lumber – Stadium Applications

Stadium Administration Maintenance Section personnel have used recycled plastic lumber to replace wooden 4”x4”x8’ “channel boards” to secure the Kingdome artificial turf since 1993. The performance is superior to that of virgin lumber, installation requires less labor, and this method has demonstrated a longer replacement schedule and a lower long-term cost. In the past year, Stadium personnel have purchased **75** boards at a cost of almost **\$1,200** with total **savings** to the County estimated at **over \$5,000 per year**, including labor. In 1998, Stadium personnel worked with the supplier to prepare the lumber before delivery, which reduced installation costs. This method has generated interest from stadia around the country and has been adopted by both the Minneapolis **Metrodome** and **B.C. Place** in Vancouver B.C., Canada.

The stadium has also used recycled plastic for sign-blanks and for “skid pads” for the feet of portable bleachers, both with good results. For more information, visit the program web-site at www.metrokc.gov/procure/green/stadlbr.htm

Plastic Lumber – Transit Applications

In 1998, **Transit Division** purchased 14 recycled plastic benches at a cost of over \$3500. These benches will be used in a pilot project on public property where the bus routes don't warrant a bus shelter. Transit maintenance personnel expect that maintenance costs will be lower with these new benches.

- **Wood-Mulch** made from shredded land-clearing debris is used by the **Solid Waste Division** for temporary road surface at the **Cedar Hills Landfill** and as landscape mulch in County projects.

The **Cedar Hills** landfill uses this material, as well as recycled concrete aggregate, to provide stable driving-surfaces, especially during rainy seasons. The landfill purchased over **66,000 yards** of this material, at a cost of **\$85,000**, in 1998, **saving** an estimated **\$65,000** by using wood-mulch instead of virgin aggregate. For more information, visit the program web-site at www.metrokc.gov/procure/green/swhog.htm

The **Department of Construction and Facilities Management** and the **Airport Division** purchased 150 cubic yards of wood-mulch for landscape application. Its performance is superior to the ground-bark typically used in this application. It decays less rapidly, is more economical, and provides a natural appearance.

In 1998, the **Roads Division** purchased almost 500 yards of wood-mulch for erosion control. This product was a substitute for a standard wood-chip material and was used at a storm-water detention pond project in the Northeast corner of the County.

For more information about the use of recycled wood-mulch, visit the program web-site at www.metrokc.gov/procure/green/wpmulch.htm and [cfmmulch.htm](http://www.metrokc.gov/procure/green/cfmmulch.htm)

- **Tire Retreading** services worth over **\$77,000** were used to retread tires for trucks and other heavy equipment at the **Renton Maintenance Facility, Fleet Division** and the **Cedar Hills Landfill**, of the **Solid Waste Division**. Retreading a tire costs half as much as buying a new tire. This not only avoided landfill disposal of tires, but also saved the County at least **\$75,000** in new tire expense in 1998.
- **Remanufactured Toner Cartridges** for laser printers are purchased under a contract developed in collaboration with local vendors and maintained by the Environmental Purchasing Program since 1991. Cartridges supplied under this contract must meet original equipment standards and provide full guarantees for performance and equipment damage. In 1997, we updated the contract specifications and added new products to the contract. This contract resulted in even greater savings for the County, which purchased more than **4,000 cartridges**, at a cost of approximately **\$125,000** in the past year. These purchases **saved over \$300,000** in 1998, as the cost of these remanufactured cartridges is approximately one-third the cost of new cartridges. Spent cartridges are remanufactured and all components are recycled when their useful life is over, reducing the landfill disposal of hazardous material. For more information, please visit the program web-site: www.metrokc.gov/procure/green/tonecart.htm

Savings Summary

In 1998, the County **saved** an estimated **\$600,000** by purchasing recycled materials through supply-contracts. The table below shows 1998 savings by commodity. More examples of savings can be found in Section III, "Environmental Initiatives of County Agencies" of this report (see page 12).

The Environmental Purchasing Program has helped agencies identify opportunities to purchase environmentally preferable products that not only perform well, but also save money. In some cases, the product simply costs less and in other cases there are savings in installation and maintenance costs. For example: the cost of a remanufactured toner cartridge is about one-third the cost of a new cartridge; wood-mulch costs roughly one-third as much as bark; shredded wood costs less than virgin aggregate; plastic lumber avoids the consumption of virgin timber and reduces maintenance cost; buying concrete aggregate avoids the consumption of virgin aggregate; and it costs half as much to retread a tire as to buy a new tire.

| Commodity | \$ | Savings |
|-----------------------|------------------|------------------------------|
| Toner cartridges | 300,000 | Product |
| Shredded wood waste | 65,000 | Product |
| Shredded wood mulch | 4,000 | Product |
| Plastic lumber | 10,000 | Product and maintenance |
| Concrete aggregate | 20,000 | Product |
| Rubblizing (asphalt) | 90,000 | Avoided disposal and product |
| Tire Retreading | 77,000 | Product |
| Total Dollars: | \$566,000 | |

Note that the amounts shown above reflect only the cost of materials and do not include savings in labor costs for installation or maintenance.

III. Environmental Initiatives of County Agencies

The King County Environmental Purchasing Program helps County agencies find ways to use environmentally preferable products and processes in their work. Though environmental responsibility has always been a part of the daily work of County agencies, recent developments in the availability of environmentally preferable materials and processes have provided new opportunities for agencies to improve the environmental impacts of their work. This is a very new area of endeavor for us all, and no one yet knows what will prove to be the most beneficial approaches. This section contains information about the results of several initiatives by which County agencies are saving time, money, and resources.

The categories of work included in this year's report are:

Waste Reduction & Recycling
Energy Efficiency
Green Building / Sustainable Design

Waste Reduction & Recycling

Water-Reuse at Fort Dent Park

In the spring of 1998, the King County **Department of Natural Resources** (DNR) launched a pilot program to use reclaimed water for irrigation at **Fort Dent Park**, in Tukwila. By using the reclaimed water to irrigate four softball-fields and one soccer-field, as much as three million gallons of drinking water will be conserved during this summer alone. The water used in this pilot project will be reclaimed at King County's Wastewater Treatment Plant, in Renton. It meets the "Class A" standards for reclaimed water set by the Washington departments of Health and Ecology, meaning it is not intended for drinking, but is safe if accidentally swallowed or if it gets in a cut or scrape.

Mulch-mowing (www.metrokc.gov/procure/green/rjcgrass.htm)

Facilities Maintenance Division has successfully undertaken a mulch-mowing program under which a maintenance contract requires the contractor to use mulching-mowers at the new **Regional Justice Center**, in Kent. The Building Supervisor and the contractor are pleased with the results. The contractor reports that overall the process costs less, because there is no disposal costs and energy is saved. "It does take a little extra time to ensure that clumps of mown grass do not remain on the lawn, but the extra time required is more than offset by the avoided disposal costs." Though this may be coincidental, the winning bid was about 15% lower than bids for conventional mowing methods.

DNR Joins Waste Reduction Program

(www.epa.gov/epaoswer/non-hw/reduce/wstewise/)

The King County **Department of Natural Resources**, with 1,250 employees in 20 locations, recently joined the **Environmental Protection Agency's (EPA) "Waste-Wi\$e"** waste prevention program. This program helps its clients reduce disposal costs and preserve resources by providing information about ways to save on such items as office paper, corrugated containers, packaging, and wood pallets.

King County is one of 10 jurisdictions, nationwide, to be featured in case-study fact sheets, published by the EPA in November. The DNR case-study highlights several elements of King County's in-house waste prevention and recycling efforts, such as double-sided copying, extensive use of e-mail and network postings, purchases of recycled paper and remanufactured toner cartridges, and use of recycled asphalt, paint, recycled concrete aggregate, and recycled glass aggregate.

Avoided Disposal through donation

After a large event at the Kingdome, several thousand plastic bags were left behind by the tenants, to be disposed by Stadium personnel. A **Stadium staff person** called a local charity to see if they could use these bags. The organization was "thrilled and came right away to get them". A simple phone call, by a dedicated staff person, assisted a local charity and avoided the disposal of useful materials.

Similar acts of environmental-thinking have followed, avoiding disposal of 1,500 paper bags and a truckload of topsoil, which King County Parks Division was able to use.

Toxics Reduction at Transit Division

The **Transit Division** of the **Department of Transportation** is responsible for the operation and maintenance of the County's municipal bus fleet. The use of solvents to wash bus parts has been standard practice for years, but four bases have reduced their use of solvents by a combined 4,000 gallons per year, **saving \$22,000 per year** and reducing the use of hazardous materials in their operations. One base, **South Maintenance**, is **completely solvent free**; its parts-cleaning system uses only soap and water.

The Division is also reducing waste from coach-washing facilities, storm water treatment systems, and industrial waste pretreatment systems. **Transit** produces tens of thousands of gallons of a thick mixture of oils, sediment and wastewater each year from these operations. In the past, all of this was disposed as a dangerous waste, at a price of \$1.25 per gallon. In 1994, the Division developed an on-site dewatering treatment system, which reduced their disposal of hazardous waste by 80% and saved **\$60,000** per year.

Carpet-Reclamation

The State of Washington maintains a contract for the installation of carpet, under which the vendor recycles the old carpet when they install replacement carpet. This contract has been used by County agencies and the contractor estimates it has recycled 13,000 pounds of carpet for King County in the past year.

Increasing numbers of carpet manufacturers are recovering old carpet and finding new uses for this material. Recycled carpet is used to make carpet-backing, plastic lumber, car parts, and other items, as well as in new carpet.

Energy Efficiency

Energy Recovery

Cedar Hills Landfill implemented a system in 1998 to burn used oil to recover energy to heat landfill facilities. This system is expected to save money by avoiding the purchase of new fuel for heating.

Energy Efficiency Upgrades

In 1997, one million dollars was appropriated to **Department of Construction and Facilities Management (DCFM)** energy conservation efforts. This money, matched with a grant from Seattle City Light, has funded several projects to improve energy-efficiency in County facilities. These projects have an expected “pay-back” period of less than ten years. Energy savings will be monitored by DCFM and results will be analyzed periodically. So far, the improvement projects have resulted in energy-cost savings of \$18,000 per month.

Highlights of accomplishments:

- Installed new parabolic lenses in existing ceiling fixtures
- Installed efficient (T-8, 3500 Degree K) fluorescent tubes and electronic ballasts.
- Retrofitted all heating, ventilation, & air-conditioning (HVAC) “mixing boxes” for better temperature control and energy savings and added new zone thermostats for better temperature control.
- Installed new domestic hot water heaters and revised piping to correct operational and code deficiencies.
- Installed new circulating pumps and valves for better reliability and efficiency for the perimeter hot water temperature control

For 1999, five-to-six million dollars in appropriations have been sought for additional equipment upgrades, which are expected to produce even more dramatic energy savings.

DCFM is also a member of the U.S. Environmental Protection Agency's *ENERGY STAR* Buildings (www.epa.gov/energystar.html) and *Green Lights* (www.epa.gov/greenlights.html) programs.

Equipment upgrades at Renton wastewater treatment plant
(waterquality.metrokc.gov/renton/renton0698.htm)

King County's **wastewater treatment plant, in Renton**, operated by the **Wastewater Treatment Division**, in the **Department of Natural Resources**, is obtaining funds from a program of the U.S. Environmental Protection Agency, to help fund pilot-projects with a new ("molten carbonate") "fuel cell" technology. These fuel cells are more energy efficient, quieter, potentially more cost effective, and better for the environment than the conventional combustion or steam turbine technologies. The treatment plant expects to reduce its electrical power load by as much as 80 percent through the use of these fuel cells.

The **Renton Plant** also obtained a \$1.8 million conservation grant through Puget Power's Commercial/Industrial Energy Conservation Program for energy-efficiency initiatives. Energy-conservation measures installed as part of this program are expected to save about 13 million kilowatt-hours per year, or enough electricity to power about 1,000 residential homes, and include:

- State-of-the-art aeration equipment
- New energy-efficient blowers
- New variable speed/adjustable pump motors
- Fluorescent light fixtures with electronic ballasts

Energy retrofits – Transit Division

In 1997, as part of the **Transit Division's** 20-year plan to increase energy efficiency, they completed three lighting retrofit projects at **South Base, Atlantic Base** and the **Auburn Park-and-Ride**. This resulted in increased lighting-levels and lowered cost, with cumulative energy savings that could power 10 electrically heated homes. In 1998, four major lighting retrofits will be completed. The plan includes on-going scheduled preventative maintenance, which provides maximum efficiency and lengthens the life-span of the equipment.

At five out of seven Transit Bases, the Division has replaced the Heating, Ventilating, and Air Conditioning (HVAC) systems with newer, more efficient models with energy-saving controls. The remaining two systems will be upgraded within the next five years.

Green Building / Sustainable design

Sustainable Design – Vashon Transfer/Recycling Station

Construction of a new Waste-Transfer/Recycling station on Vashon Island began in June, 1998 and will be completed in May, 1999. Sustainability was a primary focus during the design of this **Solid Waste Division** facility. A subcontractor was hired to review project specifications from a sustainability perspective and develop recommendations and new specification language in selected material categories. This information will be made available on the program web-site as it becomes available.

Sustainable Construction – King Street Building

The **Department of Construction and Facilities Management** is overseeing a private development project to construct a new facility in which the County Departments of

Transportation and **Natural Resources** will become tenants under a lease-to-own agreement. The design calls for an eight-story, 300,000 square-foot building, to be situated on King Street, in Pioneer Square. The Environmental Purchasing Program developed information about recycled and environmentally preferable materials for evaluation by the architect, developer, and their contractors. The Department of Natural Resources has asked the developer to adhere to a number of environmentally-preferable building principles in this project, including the use of recycled materials. The building will be completed in the summer of 1999.

Current plans call for installation of a plumbing system which will allow rainwater collected from roof-runoff (and, eventually, other recovered wastewater) to be stored in a cistern for re-use in flushing toilets. The building will use natural light as much as possible and occupancy sensors and task-lighting to increase lighting efficiency. Also planned are an energy-efficient heating and air-conditioning system, job-site recycling, and the use of recycled content products, such as tiles made from recycled glass.

Sustainable Design – 911 Center

The **Department of Construction and Facilities Management** is planning a project to build a new emergency response (911) center. Planners incorporated sustainable design elements into the selection process for the design contractor and plans to require the contractor to use environmentally preferable elements in the building.

Sustainability Library (DCFM)

In 1997, the **Department of Construction and Facilities Management** created a “sustainability library” to provide department project managers with access to product samples and information about environmentally preferable materials for their projects. Their goal is to expand this resource and make it available to other agencies.

IV. Supporting Program Elements

The Environmental Purchasing Program helps agencies develop practical ways to use recycled and other environmentally preferable products and processes. It does so through several program elements, which are detailed in this section.

Agency Liaison Network

The program provides agencies with information on environmentally preferable products and processes through a network of liaisons, which it uses to share evaluation results and specifications between agencies. This helps agencies to create new evaluation opportunities and revise contract administration procedures to institutionalize the routine use of these materials.

The number of employees in the County has nearly doubled in the past three years, due to the assimilation of agencies formerly housed within the METRO organization. Now, with over 12,000 employees, it is necessary to establish new liaisons and renew existing ones in reorganized agencies.

Internet Information Project

The communications capacity of the Internet is bringing great changes to the way this program delivers information to its clients. This annual report, for example, is being distributed principally through e-mail, with only a few paper copies being produced. The program delivers virtually all of its information to clients through email or the world-wide-web.

World-Wide-Web (www.metrokc.gov/procure/green/)

The King County Environmental Purchasing Program has maintained a “web-site” on the world-wide-web **since 1995**, as a resource to participants in the King County program as well as others in the community.

Municipalities and other organizations throughout the nation are beginning to recognize the difference they can make to the environment by purchasing environmentally preferable products. Thanks to the leadership of King County agencies, purchasers are able to use the Internet to find information that will help them understand their opportunities in this confusing new area. **Over 40,000** visitors have visited the Program web-site in the past year. People from all over the world are taking advantage of this site and these contacts are bringing new information that County agencies, suburban cities, and others can use as we all try to develop new applications for recycled and other environmentally preferable products.

Visitors to this web-site find information on King County's experiences with recycled and environmentally preferable products, specifically specifications, evaluations, contracts, and contact information.

The Program began producing a “procurement bulletin” in 1997 to disseminate information about environmental products, events, contracts, and other resources. Recipients include participants in the program’s County liaison network, suburban cities, and others around the nation. Currently, there are over 200 recipients of this bulletin. An index and the contents of past bulletins can be found on the program web-site. Examples of bulletin titles from this year:

- Remanufactured Laser Printer Toner Cartridges
- EPA Energy Star/Green Lights Programs
- Recycled Concrete Aggregate
- Waste Prevention
- Recycled Materials for Landscape Applications
- Energy Efficiency Projects in King County
- Recycled Plastic Lumber

Internet Discussion Groups

We participate in several Internet discussion groups, where we exchange environmental purchasing information with other jurisdictions, many of which now subscribe to our Procurement Bulletin. The participants come from across the nation and bring a wide range of experience, which has been shared with County agencies for evaluation.

- **EPPNET** – the Environmentally Preferable Purchasing Network, sponsored by the Northeast Recycling Council (NERC). The Council publicizes the availability of our "Procurement Bulletin" to their almost 200 network subscribers.
- **Waste Prevention Forum** – a discussion group managed by Solid Waste Division, and part of the National Waste Prevention Coalition.
- **Green Building** – a discussion group on green-building topics, sponsored by Oikos (a sustainable and energy-efficient construction resource) and Environmental Building News.

Special Information Programs

The program provided information about environmentally preferable procurement opportunities through tours, meetings, and special events, such as:

- Environmentally Preferable Products and Processes
 - Fluorescent Lamp Recycling
 - Energy Efficient Lighting and Air Conditioning
 - Hard-to-Recycle Items
 - EPA Energy Star/Green Lights Programs
 - Waste Prevention
 - Energy Efficiency Projects in King County
 - Recycled and Rubberized Asphalt

Presentation to Roads personnel by the Rubberized Asphalt Technology Center of the State of California.

Recycled plastic lumber

Wetlands bridge at Meadowbrook Pond (City of Seattle) and
boardwalk and benches at Golden Gardens Park (City of Seattle)

Recycled glass tiles

Toured a manufacturer and viewed recycled tiles

Recycled paper and waste reduction

Tour of a warehouse that utilizes computer technology to reduce the waste of paper

Public Involvement

The King County Environmental Purchasing Program offers its experience in support of the planning, policy-development, and procurement-education activities of other jurisdictions and organizations.

The program provided technical assistance to, and exchanged information with, suburban cities in King County, as well as state and federal agencies, and other users. In 1998, program personnel participated in the meetings, programs and conferences conducted by the following organizations:

- **President's Council on the Environment**

The Environmental Purchasing Program was selected to participate in a workshop sponsored by the President's Council on the Environment and the Office of the Federal Environmental Executive, in Washington D.C. The forum consisted of 120 national experts, three from Washington State.

- **National Association of Counties (NACo):**

Received the First-Annual (1998) Environmental Procurement Award of NACo's Environmental Purchasing Project.

- **National Marketplace for the Environment, Los Angeles Conference**

Presented information about King County's Environmental Purchasing Program

- **Northwest Sustainable Building Action Work Group, City of Seattle/King County**

Participated in planning for regional actions in support of green building in 1998. The first phase of planning is to be completed by end of the year.

- **U.S. Environmental Protection Agency (EPA):**

Participated in an EPA project to develop Waste Reduction Procurement guidelines and technical-assistance documents for municipal governments

- **Waste Information Network – Environmental Conference**

Presented information about King County's Environmental Purchasing Program

- **Association of Oregon Recyclers – Eugene, Oregon**

Presented information about King County's Environmental Purchasing Program

- **American Society for Testing and Materials (ASTM):**
Served on Committee D06, Paper and Paper Products
Subcommittee D06.40, developing a standard terminology for recycled paper
- **CDL Council**
Participated in Council meetings, established by the Washington State Recycling Association, Department of Ecology, and King County Solid Waste Division to address issues related to construction, demolition and landclearing debris
- **Environmental Purchasing Initiative – City of Seattle**
Conferred with program personnel to share information about environmental purchasing
- **Sustainable Building Forum – Solid Waste Division**
The Solid Waste Division hosted a forum at which King County agencies were able to share information about sustainable building. This effort will help agencies to integrate the sustainability message into the County's various technical assistance programs.

Publicity

A key to the success of the King County Environmental Purchasing Program has been the exchange of practical information with other users of these unfamiliar materials. Many of these exchanges have come as a consequence of exposure through national magazines, newspapers, and other publications.

Among the publications which featured the King County Environmental Purchasing Program in 1998 were:

Environmental Building News: November, 1997
1997 annual report and list of accomplishments
www.ebuild.com

Government Procurement Magazine, August, 1997
Article "Procurement Program Eases (King) County into Buying Recycled"
www.metrokc.gov/procure/green/pubgovpm.htm

Recycling Times: November, 1997
1997 annual report and notice of web-site
www.wasteage.com/RCT/RecyclingTimes.htm

Sustainable Business Network: April, 1998
Annual report and web-site
www.envirolink.org/sbn/archive/apr98/newresources.html

Waste Reduction Tips: January/February, 1998

Mention of annual report and web-site (“most impressive buy recycled procurement program”)

Wastewise Update - Closing the Loop: December, 1997

EPA Wastewise publication profiled King County Buy-Recycled program

www.epa.gov/wastewise

Policy

King County Policy Revision (www.metrokc.gov/procure/green/policy.htm)

The King County Recycled Product Procurement Policy (Executive Policy CON 7-1-2, A/EP) was revised in 1995 to accommodate changes to the procurement guidelines of the United States Environmental Protection Agency, the creation of Federal Executive Order 12873, and to reflect the County's four years of experience in policy implementation. The revised policy requires County agencies to purchase “environmentally preferable”* products wherever practicable and expands the commitment of agencies to other environmentally preferable initiatives such as reduction of the use of toxic materials, energy conservation, waste-reduction, and “green-building.”

*King County defines "environmentally preferable" as products that have a lesser or reduced effect on human health and the environment when compared with competing products that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product.

Model Procurement Policy

Program personnel continued to promote the development of recycled and environmentally preferable procurement policies in suburban cities by providing technical support to the Solid Waste Division's Waste Reduction/Recycling Section. The model was revised in 1997 to broaden the range of environmentally preferable products. Program personnel also provide direct technical assistance to suburban cities for policy implementation, including sharing contracts, specifications, and procurement strategies. According to the Solid Waste Division, twenty-one cities have adopted policies, based on King County's model, since 1992:

| | | |
|---------------|------------------|---------------|
| Bellevue | Burien | Carnation |
| Des Moines | Duvall | Enumclaw |
| Federal Way | Issaquah | Kent |
| Kirkland | Lake Forest Park | Mercer Island |
| Normandy Park | North Bend | Pacific |
| Snoqualmie | Tukwila | Woodinville |

Allied King County Programs

Many King County programs provide information and technical assistance to help citizens and businesses find ways to help improve our environment. The Environmental Purchasing Program has collaborated with the following programs for the distribution of information in 1998:

Construction, Demolition and Landclearing (CDL) Debris Program, Solid Waste Division (www.metrokc.gov/dnr/swd/recycomp/cdl2.htm): assists County businesses and agencies in management of construction waste and sustainable building. In 1997, this agency co-sponsored a sustainable building conference, attended by over 500 people, including employees from several King County agencies.

Employee Recycling Program, Department of Construction and Facilities Management (www.metrokc.gov/emprec.html): coordinates the in-house recycling program for 12,000 King County employees and encourages waste reduction. In 1997, employees in County facilities recycled **1.2 million pounds** of material. Also in 1997, two King County facilities became Green Works members achieving a 49% recycling rate: the **Courthouse** and the **Administration** buildings.

GreenWorks, Business Recycling Program, Solid Waste Division (www.metrokc.gov/dnr/swd/greenwrk/): provides technical assistance to County businesses to enhance waste reduction, recycling and buy-recycled practices and then recognizes these businesses for their efforts. In 1997, the GreenWorks program began to allow public agencies to participate and qualified two King County buildings, adding them to the recognition list.

Hazardous Waste Program, Department of Natural Resources (www.metrokc.gov/hazwaste)

provides technical assistance on hazardous-waste issues to businesses and citizens, including free waste audits. This group also administers the Envirostars recognition program, to recognize businesses that reduce and/or properly manage hazardous waste.

Industrial Materials Exchange (IMEX), Department of Public Health

(www.metrokc.gov/hazwaste/imex/): IMEX is a free service designed to match businesses that produce wastes, industrial by-products, or surplus materials with businesses that can use them productively. The program produces a catalogue to encourage waste exchanges, create opportunities for recycling and reduce landfill disposal of surplus materials. Over 1,200 exchanges have occurred as a result of IMEX matches to-date. This represents total estimated savings of \$6.5 million in disposal and purchasing costs to area businesses.

King County Commission for Marketing Recyclable Materials, Dept. of Natural Resources

(www.metrokc.gov/market/index.htm): assists County businesses and citizens in marketing and buying recycled products with programs such as "Get in the Loop" and "Shift Gears."

Appendix: Environmental Purchasing by Agency

All King County agencies purchase recycled paper products, remanufactured toner cartridges, and recycled office supplies through contracts maintained by the Environmental Purchasing Program. In addition, County agencies are participating in the development of applications for a wide range of other materials by conducting pilot-projects and evaluations.

Department of Construction & Facilities Management

Airport Division

recycled paint
recycled plastic can liners
remanufactured antifreeze
re refined oil
recycled wood mulch

Regional Justice Center

recycling on site
recycled asphalt
recycled concrete aggregate
topsoil containing compost
mulch mowing

Facilities Maintenance

recycled paint
recycled plastic can liners
recycled wood mulch
energy retrofits
sustainability library

Parks, CIP

recycled paint with glass

Department of Natural Resources

Solid Waste Division

Engineering Section

recycled asphalt
recycled concrete aggregate
recycled glass aggregate
topsoil-containing compost
sustainable building project
waste reduction initiatives

Solid Waste Division

Cedar Hills Landfill

recycled concrete aggregate
remanufactured antifreeze
re-refined oil
shredded wood waste

Wastewater Treatment

biosolids compost
energy retrofits
water reuse

Department of Parks & Cultural Resources

Maintenance & Facilities

recycled paint
recycled plastic bollards
recycled rubber mats
water reuse

recycled plastic can liners
recycled plastic lumber
rubber chips (playground)
recycled playground equipment

Department of Stadium Administration

Maintenance/Operations

recycled paint
recycled plastic lumber
recycled plastic worm bins
re-refined oil

recycled plastic can liners
recycled plastic signs
remanufactured antifreeze

Department of Transportation

Roads Division

recycled asphalt
recycled concrete aggregate
recycled glass aggregate
recycled plastic bollards
recycled plastic lumber
recycled plastic picnic table
recycled plastic traffic cones
remanufactured computer disks
re-refined oil
topsoil containing compost
tire stops
traffic delineators
rubberized asphalt
rubblizing

Fleet Administration, Renton Shop

tire-retreading services
recycled plastic can liners
recycled plastic lumber
re refined oil
remanufactured antifreeze
recycled tire-rubber wheel chocks

Fleet Administration, Motor Pool

remanufactured antifreeze
re refined oil

Transit Division

recycled plastic lumber
reduced toxics
energy retrofits